

Appl. No. 10/537,573
Amendment dated 11/12/2007
Reply to Office Action of 08/15/2007

Remarks

Claim Objections

Claims 4 – 10 were objected to under 37 CFR 1.75(c) as being in improper form because multiple dependent claims cannot depend from any other multiple dependent claims.

Applicant has amended claims 4 – 10 to remove all multiple dependencies and respectfully requests they be evaluated on their merits.

Rejections under 35 U.S.C. 102

In the 08/15/2007 office action, claims 1 and 2 were rejected as being anticipated by U.S. Patent No. 4,600,436 to Traver et al., as discussed on pages 2 and 3 of the office action.

Traver et al. teaches a process for the preparation of an emulsion of an organo-functional polysiloxane comprising mechanically emulsifying a silanol-functional polysiloxane in water in the absence of any basic or acidic catalyst (4:44-45) for silanol polycondensation, adding an organofunctional silane of the formula X-A-Si(R)_n(OR')_{2-n}, where X represents an organic functional group, A represents a divalent organic linkage, each R represents a hydrocarbyl or substituted hydrocarbyl radical; each R' represents hydrogen or an alkyl or acyl group; and n = 0, 1, or 2 (5:55-62), to the aqueous phase of the resulting emulsion and reacting the 'OR' groups of the organofunctional silane with the silanol groups of the polysiloxane to form the organo-functional polysiloxane (8:55-9:5). Traver et al. further teaches that the silanol-functional polysiloxane can be emulsified in the presence of a non-ionic surfactant (5:63-6:2). Thus, Traver et al. anticipates all the limitations of instant claims 1 and 2.

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Applicant believes that claims 1 and 2 are patentably distinguished from the Traver patent and respectfully traverses this rejection. Specifically, Traver fails to disclose all the limitations of claims 1 and 2. Traver's emulsions and processes teach emulsion polymerization techniques whereas claim 1 specifically recites:

A process for the preparation of an emulsion of an organo-functional polysiloxane comprising mechanically emulsifying a silanol-functional polysiloxane(I) in water in the absence of any basic or acidic catalyst for silanol polycondensation,...

Mechanical emulsification vs emulsion polymerization are well established terms of the art used to differentiate two processing techniques for the preparation of emulsions. Traver clearly teaches and emphasizes emulsion polymerization, as recited in main independent claims 1 (step A), claim 23 (step II), and claim 52 (step A). Furthermore, throughout the specification, Traver emphasizes emulsion polymerization, see for example 4:46-47, 6:33-34, 6:59-61, and Example 1 describing "five emulsion polymerized aminofunctional silicone emulsions" at 5:50.

In contrast, claim 1 specifically defines mechanically emulsifying a silanol-functional polysiloxane. Thus, Applicant respectfully submits that claim 1 is distinguished from Traver and the claim rejection based on 35 U.S.C. 102 is not proper.

Rejections under 35 U.S.C. 103

Claim 3 was rejected as being obvious over Traver et al. (US 4,600,436) in view of WO 2002/42360 to Schirosi et al.

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The U.S.C. 103 rejection on page 3 and 4 of the office action states;

Traver et al. teaches a process for the preparation of an emulsion of an organo-functional polysiloxane as set forth above. Traver et al. does not teach that the silanol-functional polysiloxane, at least one surfactant, and water are continuously fed to a high shear mixer in such proportions as to form a viscous oil in water emulsion which is continuously withdrawn from the mixer and is diluted before addition of the organofunctional silane/alkoxy silane. However, Schirosi et al. does explicitly teach this limitation (paragraphs 20, 22, and 35). Traver et al. and Schirosi et al. are combinable because they are from the same field of endeavor, namely silicone oil-in-water emulsions. At the time of invention, a person having ordinary skill in the art would have found it obvious to employ the oil-in-water compositions as taught by Traver et al. in the continuous process as taught by Schirosi et al. and would have been motivated to do so. Schirosi et al. teaches that the polysiloxane fluids with terminal silanol groups can be further reacted in a chain extension reaction (examples 3 and 4). Schirosi et al. further teaches that one such chain extension reaction involves reaction of a silanol-terminated polysiloxane with an alkoxysilane (page 13, lines 28-29).

Applicant respectfully traverses this rejection and believes claim 3 is non-obvious in view of Traver and Schirosi for the following reasons.

First, Applicant respectfully submits the 103 rejection does not provide a sufficient factual inquiry of obviousness as stated in *Graham v. John Deere Co*, and further described in the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in view of the Supreme Court Decision in KSR v. Teleflex Inc., (Federal Register/Vol. 72, No. 195, pages 57526-57535).

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In particular, Applicant respectfully submits the above rejection fails to determine the scope and content of the prior art, and subsequently fails to ascertain the differences between the claimed invention and the prior art.

As discussed above, Traver primarily teaches emulsion polymerization techniques and fails to teach

emulsions of an organo-functional polysiloxane comprising mechanically emulsifying a silanol-functional polysiloxane(I) in water in the absence of any basic or acidic catalyst for silanol polycondensation,

as defined in claim 1 and from which claim 3 depends.

Applicant believes the U.S.C. 103 rejection fails to account for a major difference in the cited prior art and the present claims, namely that Traver teaches emulsion polymerization while the present claims are directed to a process comprising a mechanical emulsification step. If the scope and content of the prior art are not determined properly, the differences between the prior art and claimed invention cannot be adequately evaluated. Thus, the U.S.C. 103 rejection does not establish a sufficient factual inquiry to support lack of obviousness according to the factors established in *Graham v. John Deere Co.*

Furthermore, Applicant believes the combination of Traver and Schirosi does not establish a *prima facie* case of obviousness because it fails the teaching/suggestion/motivation to combine test. First, the combination of Traver and Schirosi fails to teach all the elements present in claim 3. As discussed above, Traver primarily teaches emulsion polymerization techniques and fails to teach

emulsions of an organo-functional polysiloxane comprising mechanically emulsifying a silanol-functional polysiloxane(I) in water in the absence of any basic or acidic catalyst for silanol polycondensation,

as defined in claim 1.

Furthermore, there is no suggestion to combine the "continuous process" as taught by Schirosi with emulsions of a mechanically emulsified silanol functional polysiloxanes in Traver, since Traver does not teach mechanical emulsions.

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The U.S.C. 103 rejection further states on page 4 of the office action that ;

Schirosi et al teaches that the polysiloxane fluids with terminal silanol groups can be further reacted in a chain extension reaction (examples 3 and 4). Schirosi et al. further teaches that one such chain extension reaction involves reaction of a silanol-terminated polysiloxane with an alkoxy silane (pages 13, lines 28-29)

Applicant respectfully wishes to point out for the record that Examples 3 and 4 of Schirosi describe a chain extension reaction via a hydrosilylation between a vinyl terminated linear polysiloxane and a SiH terminated short chain linear polysiloxane. Thus, Examples 3 and 4 fail to teach polysiloxanes with terminal silanol groups reacting with an alkoxy silane and thus are not relevant because of this difference.

In discussing examples of chain extension reactions, Schirosi does state on page 13, lines 28-29;

...or the reaction of an Si-OH group with an alkoxy group present in an alkoxy silane,

However, Schirosi does not teach or suggest organofunctional silanes of the formula of claim 1, from which claim 3 depends.

Applicant therefore respectfully submits the present claims define an invention that is non-obvious in view of Traver and Schirosi.

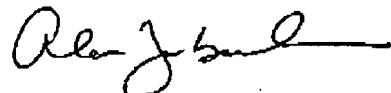
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The present response is being submitted within the three-month shortened statutory period for response to the outstanding Office Action. Applicant authorizes the USPTO to charge deposit account 04-1520 for any fees that should be necessary to maintain the pendency of the application.

In view of the above, it is respectfully submitted that the claims are in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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